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Challenge Based Learning in Students for Vocational Skills

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Abstract

Students and vocational skills are often attributed to poor students in academic. It is less concerned about improving the quality of the students. Thus the challenge based learning is one of the efforts in producing students with vocational and soft skills as well as intelligent use of technology and facilities around them to solve real-world problems. During the implementation of challenge based learning students are given guidance in various aspects of the question of whether to be untied activities to do and the results need to be removed. At the end of teaching and learning, both sides, students and faculty members, will benefit through the sharing of information and activities.

Keywords: Challenge based learning, students; vocational skills; Malaysia.

1. Introduction

Methods of learning to students the skills exercised found increasingly less effective as the delivery of information at their fingertips faster than the delivery of lectures in the classroom or workshop. Apple Classroom of Tomorrow (2009) explains that learning is an approach based on the challenge of applying the lessons in classes and workshops to challenge settlement to go through. Learning through challenges involved teaching and learning methods in order to motivate the students in various technologies and facilities around them to solve real-world problems. Through this approach, students should implement assignments based on skills and interests, while the lecturer or other experts with challenging questions posed by the students and the students are trained to be brave act on the knowledge gained and practice sharing information and experience.

Among the key features of this challenge based learning is the diversity of possible solutions and strategies, natural resources and relationships, opportunities to develop self attitude, talent, hone basic skills to management and production technology, opportunities for students to do something rather than learning in class or workshop only, documenting the experience gained from solving challenges and finding information 24 hours a day.

Challenge based learning emphasized elements of soft skills such as communication skills to students, creative and critical thinking skills in problem solving, team work skills, lifelong learning and information management skills, entrepreneurship, ethics and moral professional and leadership skills. Apart from expertise in skills, soft skills are also one of the major challenges to the lecturer to develop in students skills that have features of human capital required by a country.

Hence this paper presented the results of the implementation of applied learning based on a challenge to the students the skills stream.

2. Literature Review

2.1. Teaching In Traditional

Education system and the needs change over generations in a particular period. In early exposure to public knowledge, the methods used in imparting knowledge are in one direction. This method requires the same approach as in the classroom learning sessions and lectures. While these skills in an educational context, the lecturer will give instruction and students will perform the tasks assigned by the lecturer based on the instructions given.

2.2. Interactive Lessons

However, after their minds are more open to society, they dare to express their views and opinions to their lecturers. Following the gradual, lecturers are also opening their minds to learning approach bilaterally or interactive. This approach requires the methods and strategies that range, in which the lecturers have to find ways and means appropriate to each teaching session. Typically, the most common methods used by lecturers are discussions, quizzes, and question and answer. While in the areas of skills, the students are given the opportunity to discuss with their lecturer about suitable activities done in the performance of their duties.

2.3. Problem Based Learning (PBL)

When students dare to express their views in discussions with friends and lecturers, students are given the opportunity to solve the problem given by the lecturers. By the approach of Problem Based Learning (PBL) was introduced and adopted in many institutions to produce students who are critical and creative in solving a given problem. However, in this approach students will focus on a problem and need to solve critical thinking, where most students vocational skills and able to follow the learning approach.

2.4. Skills Certification Malaysia (SKM)

In the MGS system, the students at the beginning of study are given full attention to the skills and knowledge only. No elements of soft skills to the students until they applied in their studies on level 3, level 4 and level 5. However, only a few students who will get to level 3 before they start their career in the field.

2.5. Challenge Based Learning (CBL)

The learning process is based on challenges from the main topic and followed with the basic question, challenge, question guide, activity guide, resource guide, get solutions, and take action based on the solution obtained, evaluation, and finally was published in the form of video.

2.6. Methods of Implementation

Learning based challenges have been implemented by Apple through their research institutions the Apple Classroom of Tomorrow (ACOT). Students are given the space and opportunity to be independent and explore knowledge and knowledge of the challenges given by the lecturer, lecturer at the same time play a role in providing support, encouragement and guidance to the students. Students should be provided with work space that can be used without time limit equipped with Internet so that they can do the activities and meetings.

Once the main topics addressed by the lecturer, the first step is to provide the basic question of where these activities students do together. Challenges related to the main topic then distributed or chosen by the students based on what they feel would be appropriate to their abilities. The students are divided into smaller groups, and this grouping is very important and will affect the result to be achieved at the end of the challenge. During the formation of the group, it is very important to consider the role of lecturer and ability of each member of the group. Each group should discuss among themselves about the duties of each member. Lecturers and students should talk together about things that are valued in determining the success of a challenge. Basic and concise briefing should be given by the lecturer to students as early guide before starting a challenge. The students will have to prepare some questions for them to make a guide during the complete challenge. The questions will be answered, improved by their own or new questions proposed as a way to gather information and dismantling of a concept. Questions guide is very important because it is a learning map constructed so that students do not deviate from the challenges and assignments. It is also a strong solution tool. It is also important for students to take time to think about a question that does not affect the action to be performed. Students need to find a reference in any other manner deemed effective in finding answers to questions that have been proposed in the guidelines. At this stage students get a solid

foundation in solving a challenge. Once the students identify possible solutions effectively, they can provide paperwork to get feedback from various parties. If necessary, students can make improvements. In the evaluation, the student is required to present the work and share the experience gained in the performance challenges.

2.7. Objective of the Study

The main goal of the implementation of challenge based learning is to produce highly skilled students in accordance with the needs of the industry and at the same time have balanced soft skills.

3. Research Methods

This study applied learning approach based on a challenge with a variety of teaching and learning. Preliminary data obtained using a questionnaire that was distributed to 40 students and 40 students' academic skills. Academic student group used the standard group where learning on this challenge not executed. While of the 40 students' skills, 20 students in this study and 20 more are in control subjects. At the end of the performance, the questionnaire was distributed again to the 40 students of the same skills to get the results. Basic theory and skills that are assessed in this study are based on the syllabus prescribed by the Ministry of Higher Education Malaysia for National Modular Certificate in Community College. Apart from continuous assessment practice in any institution of higher learning, a more specific assessment of soft skills performed referring to Umar et al. (2010) in detail taxonomy matrix based on the seven elements of soft skills.

4. Findings

4.1. Early Findings

Before learning based challenges performed, 40 students were asked to answer a questionnaire and an initial analysis exercise. The first questionnaire is to find out the basic theory of knowledge, life skills and soft skills of the students at the beginning of their studies. From this analysis, it was found that only skills students gain an average score of 31% for basic knowledge of theory and 35.5% for basic knowledge of life skills knowledge never taught in school. While only 21.5% of the scores obtained by the student's soft skills. Compared to academic students score significantly higher than students skills of 75% of the theoretical foundations of knowledge, 68% for basic knowledge of life skills and 70% for soft skills.

After the implementation of learning based on a three-month challenge, the questionnaire was distributed once again to assess how far the students improve.

4.2. Knowledge Base Theory and Life Skills

The findings of the survey conducted found that the student's theoretical knowledge, base on skills, in line with the percentage, increase student knowledge skills.

Increased knowledge of the theoretical basis is less favorable due to the lack of interest of students to learn. Skills students have less interest in understanding a thing even if the item is very closely related to the area of their expertise. Students are more comfortable with the answer "do not know" than to ask a lecturer on something if they do not know or do not understand.

While the percentage is increase in basic life skills to the students who studied up to 77% compared to the control group. Percent increase proves that the challenge does not affect the learning based on the skills the education system is being implemented.

4.3. Soft Skills

The findings of soft skills are a critical parameter in this study. By the more detailed analysis is made based on the seven elements of soft skills.

5. Discussion

Results showed that challenge based learning can improve the quality of soft skills among the students' skills. Although the percentage is still not fixed to the percentage of earned academic students, an increase of 35% is a value that is quite favorable compared to an increase of only 9% of students in the control group skills through existing learning methods. Soft skills to the students' skills are a major challenge to lecturers as most of them consist of students lagging behind in school. The highest percentage increase was

for team work skills to execute the challenges are mainly students in the group. Students are trained to be smarter delegate to each team member based on their ability level. However, the lowest percentage increase is the skill of leadership. Students found to lack the leadership skills such as the ability to supervise a team take alternating roles between team leader and team member.

Conclusion

Based on the research conducted, several follow-up should be done by the parties concerned. Human resource is the main driving force in the implementation of learning based on these challenges. The lecturer should always be prepared with challenging questions that will be raised by the students. Facilities with broadband internet speed, equipped with video streaming are essential in order to make room for the students to find information more easily, and to facilitate presentations by students. Besides this institutional relationships with industry should also be developed so that students get the original reference.

The value of soft skills is able to provide competitive graduates. It helps them in finding a job and is able to undergo a challenging working environment. Skills education institutions should play an important role in producing well-balanced human capital in terms of intellectual, life skills and soft skills.

References

Apple Classroom of Tomorrow. (2009). *Challenge based learning*. U.S: Apple Inc.

Umar, R., Wahid, M. S., & Haslinda, J. A. Y. (2006). *Modul pembangunan kemahiran insaniah (soft-skill) untuk institusi pengajian tinggi Malaysia.* Serdang: Universiti Putra Malaysia.

Figures & Tables

Figure 1: Flow chart component implementation of CBL

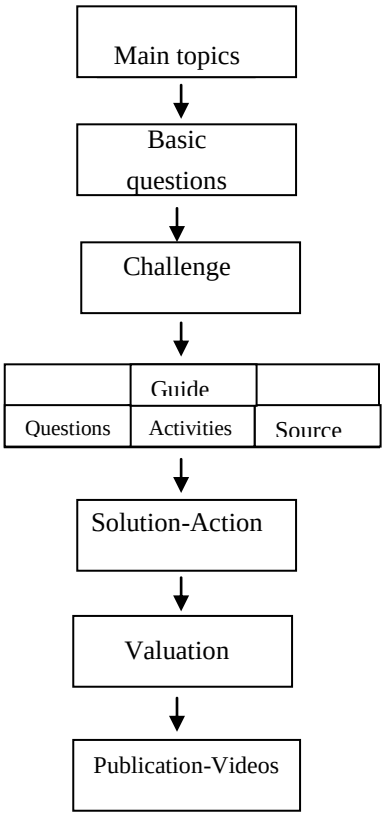

Table 1: Comparison of knowledge scores of students and student skills

Category Students	Basic Theory	Basic Life Skills
Academic students (standard)	75%	68%
Student Skills (control)	32%	35%
Student Skills (reviewed)	30%	36%

Table 2: Comparison of soft skills scores and student academic skills

Category Students	Soft Skills
Academic students (standard)	70%
Student Skills (control)	24%
Student Skills (reviewed)	19%

Table 3: Percentage increase in knowledge of the theoretical basis

Student Group	Before PBC	After PBC	Percentage Increase
Control Group	32%	52%	29%
Studied Group	30%	47%	24%

Table 4: Percentage increase basic knowledge of life skills

Student Group	Before PBC	After PBC	Percentage Increase
Control Group	35%	79%	68%
Studied Group	36%	85%	77%

Table 5: Percentage improvement of soft skills to the students who studied

Elements of Soft Skills	Before PBC	After PBC	Percentage Increase
Communication	18%	44%	32%
Problem Solving	39%	52%	21%
Teamwork	27%	78%	79%
Information Management	16%	48%	38%
Entrepreneurial Skills	10%	28%	20%
Professional Ethics and Moral	7%	46%	42%
Leadership	13%	25%	14%
Overall percent	19%	46%	35%

Table 6: Percentage improvement of soft skills to a control group of students

Elements of Soft Skills	Before PBC	After PBC	Percentage Increase
Communication	27%	35%	11%
Problem Solving	36%	38%	3%
Teamwork	35%	44%	14%
Information Management	20%	25%	6%
Entrepreneurial Skills	23%	38%	19%
Professional Ethics and Moral	14%	20%	7%
Leadership	15%	18%	4%
Overall percent	24%	31%	9%